ABSTRACT

A process of forming metal silicide on specific regions of a MOSFET device without degrading a MOSFET metal gate structure during a wet etch cycle of a self-aligned metal silicide (SALICIDE) procedure, has been developed. The process features protecting or encapsulating the metal gate structure prior to a wet etch procedure used to remove unreacted metal after metal silicide formation. This is accomplished via use of an amorphous silicon shape initially defined on an underlying metal gate structure, allowing the salicide procedure to form metal silicide on the top surface of the gate structure. The metal gate structure now featuring an overlying metal silicide shape and featuring overlying composite insulator sidewall spacers, can be subjected to a salicide wet etch procedure without risk of metal gate erosion.